AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A method of congestion control in transmission of data in packets over a network link using a transport layer protocol, wherein ~~:~~

   ~~a)~~ the number of unacknowledged packets in transit in the link is less than or equal to a congestion window value $cwnd_i$; comprising:

   a) ~~b)~~ varying the value of $cwnd_i$ ~~is varied~~ according to an additive-increase multiplicative-decrease (AIMD) law having ~~an~~a rate of increase parameter α_i, ~~and~~

   b) ~~c)~~ increasing the value of α_i ~~is increased~~ during each congestion epoch,

   c) ~~d)~~ responsive to detection of network congestion during a kth congestion epoch at a time when the value of $cwnd_i$ is $w_i(k)$, setting the value of $cwnd_i$ to $\beta_i w_i(k)-\delta$ where $\delta = 0$ initially and $\delta_i = \beta_i\left(\alpha_i^H - \alpha_i^L\right)$ after an increase in the value of α_i, and

   d) permitting packets to be transmitted over the network link in accordance with the value of $cwnd_i$ set in step c).

2. (Currently Amended) A method of congestion control according to claim 1, further comprising increasing ~~in which~~ the value of α_i ~~increases~~ at a fixed time after the start of each congestion epoch.

3. (Currently Amended) A method of congestion control according to claim 2 further comprising calculating ~~in which~~ the fixed time ~~is calculated~~ as a fixed multiple of the round-trip time for a data packet to travel over the network link.

4. (Currently Amended) A method of congestion control according to claim 1 further comprising increasing ~~in which~~ the value of α_i ~~increases~~ at a plurality of fixed times after the start of each congestion epoch.

5. (Currently Amended) A method of congestion control according to claim 4 further comprising calculating ~~in which~~ each fixed time ~~is calculated~~ as a respective fixed multiple of the round-trip time for a data packet to travel over the network link.

6. (Currently Amended) A method of congestion control according to claim 1 further comprising setting ~~in which~~ the value of α_i ~~is~~ to unity at the start of each congestion epoch.

7. (Canceled)

8. (Currently Amended) A method of congestion control according to claim ~~7~~1 ~~in which~~~~further~~ comprising increasing α_i ~~increases~~ as a polynomial function of time from the start of a congestion epoch.

9. (Canceled)

10. (Canceled)

11. (Currently Amended) A method according to claim ~~10~~1, further comprising ~~in which~~ during each congestion epoch, at a time prior to increase in the value of α_i, ~~the method implements~~implementing ~~the~~ transport control protocol (TCP) having standard congestion control.

12. (Currently Amended) A networking component for transmission of data in packets over a network link using a transport layer protocol, the networking component being operative to implement congestion control, wherein:

   ~~a)~~ the number of unacknowledged packets placed by the networking component in transit on the link is less than or equal to a congestion window value $cwnd_i$;

   a)~~b)~~the value of $cwnd_i$ is varied according to an additive-increase multiplicative-decrease (AIMD) law having ~~an~~a rate of increase parameter α_i; ~~and~~

   b)~~c)~~the value of α_i is increased during each congestion epoch,

   c)~~d)~~upon detection of network congestion during a kth congestion epoch at a time when the value of $cwnd_i$ is $w_i(k)$, the value of $cwnd_i$ is set to $\beta_i w_i(k)-\delta$ where $\delta = 0$ initially and $\delta_i = \beta_i(\alpha_i^H - \alpha_i^L)$ after an increase in the value of α_i, and

d) packets are transmitted over the network link in accordance with the value of *$cwnd_i$* set in step c).

13. (Original) A networking component according to claim 12 in which the value of α_i is increased at a fixed time after the start of each congestion epoch.

14. (Original) A networking component according to claim 13 in which the fixed time is calculated as a fixed multiple of the round-trip time, being the interval between the networking component placing the packet on the network link and its receiving an acknowledgement of receipt of the packet.

15. (Original) A networking component according to claim 12 in which the value of α_i is increased at a plurality of fixed times after the start of each congestion epoch.

16. (Original) A networking component according to claim 15 in which each fixed time is calculated as a respective fixed multiple of the round-trip being the interval between the networking component placing the packet on the network link and its receiving an acknowledgement of receipt of the packet.

17. (Original) A networking component according to claim 12 in which the value of α_i is unity at the start of each congestion epoch.

18. (Canceled)

19. (Currently Amended) A networking component according to claim ~~18~~12 in which α_i is increased as a polynomial function of time from the start of a congestion epoch.

20. (Canceled)

21. (Currently Amended) A networking component according to claim 12 implemented in executable computer code stored on a computer readable medium.

22. (Currently Amended) A method of congestion control in transmission of data in packets over a network link using a transport layer protocol~~,~~ to transmit a plurality of data flows on the link there being a respective round-trip time *RTT_i* associated with

the ith data flow sharing the link, RTT_i being the interval between a networking component placing a packet on the network link and its receiving an acknowledgement of receipt of the packet, the shortest round-trip time being designated $RTT_{min,i}$ and the greatest round-trip time being designated $RTT_{max,i}$~~,~~ wherein:

~~a)~~ the number of unacknowledged packets in transit in the link is less than or equal to a congestion window value $cwnd_i$; comprising:

~~b)~~a)varying the value of cwnd ~~is varied~~ according to an additive-increase multiplicative-decrease (AIMD) law having a multiplicative decrease parameter β_i, ~~and~~

~~c)~~b)setting the value of β_i ~~is set~~ as ~~a function of one or more characteristics of one or more data flows carried over the network link~~ $\beta_i = \frac{RTT_{min,i}}{RTT_{max,i}}$, and

c) permitting packets to be transmitted over the network link in accordance with the value of $cwnd_i$.

23. (Canceled)

24. (Canceled)

25. (Currently Amended) A method of congestion control according to claim ~~24~~22 ~~in which~~further comprising monitoring the values of $RTT_{min,i}$ and $RTT_{max,i}$ ~~are monitored~~ and re-evaluating the value of $\beta_i = \frac{RTT_{min,i}}{RTT_{max,i}}$ ~~is re-evaluated~~ periodically.

26. (Currently Amended) A method of congestion control according to claim 22 in which the additive-increase multiplicative-decrease law has ~~an~~a rate of increase parameter α_i, and comprising varying α_i ~~is varied~~ as a function of β_i.

27. (Currently Amended) A method of congestion control according to claim 26 ~~in which and~~further comprising varying α_i ~~is varied~~ as $\alpha_i = 2(1-\beta_i)$.

28. (Canceled)

29. (Canceled)

30. (Canceled)

31. (Canceled)

32. (Currently Amended) A networking component for transmission of data in packets over a network link using a transport layer protocol, the networking component being operative to transmit a plurality of data flows on the link there being a respective round-trip time RTT_i associated with the ith data flow sharing the link, RTT_i being the interval between the networking component placing a packet on the network link and its receiving an acknowledgement of receipt of the packet, the shortest round-trip time being designated $RTT_{min,i}$ and the greatest round-trip time being designated $RTT_{max,i}$, the component being operative to implement congestion control, wherein:

    ~~a)~~ the number of unacknowledged packets placed by the networking component in transit on the link is less than or equal to a congestion window value $cwnd_i$;

    ~~b)~~a)the value of $cwnd_i$ is varied according to an additive-increase multiplicative-decrease (AIMD) law having a multiplicative decrease parameter β_i; and

    ~~c)~~b)the value of β_i is set as ~~a function of one or more characteristics of one or more data flows carried over the network link~~ $\beta_i = \frac{RTT_{min,i}}{RTT_{max,i}}$.and

    c) packets are transmitted over the network link in accordance with the value of $cwnd_i$.

33. (Canceled)

34. (Canceled)

35. (Currently Amended) A networking component according to claim ~~34~~32 operative to determine the values of $RTT_{min,i}$ and $RTT_{max,i}$ and re-evaluate the value of β_i periodically.

36. (Original) A networking component according to claim 35 that calculates the value of $RTT_{max,i}$ from the value of β_i during previous congestion epochs.

37. (Canceled)

38. (Canceled)

39. (Canceled)

40. (Canceled)

41. (Canceled)

42. (Canceled)

43. (Currently Amended) A networking component according to claim ~~33~~32 implemented in executable computer code stored on a computer readable medium.

44. (New) A networking component for transmission of data in packets over a network link using a transport layer protocol, the networking component being operative to implement congestion control,

wherein the number of unacknowledged packets placed by the networking component in transit on the link is less than or equal to a congestion window value $cwnd_i$;

a) the value of $cwnd_i$ is varied according to an additive-increase multiplicative-decrease (AIMD) law having a multiplicative decrease parameter β_i and a rate of increase parameter α_i, and which is operative to vary α_i as $\alpha_i = 2(1-\beta_i)$;

b) the value of β_i is set as a function of one or more characteristics of one or more data flows carried over the network link, and

c) packets are transmitted over the network link in accordance with the value of $cwnd_i$.

45. (New) A networking component for transmission of data in packets over a network link using a transport layer protocol, the networking component being operative to transmit a plurality of data flows on the link there being a respective round-trip time RTT_i associated with the ith data flow sharing the link, RTT_i being the interval between the networking component placing a packet on the network link and its receiving an acknowledgement of receipt of the packet, the shortest round-trip time being designated $RTT_{min,i}$ and the greatest round-trip time being designated $RTT_{max,i}$, the component being operative to implement congestion control,

wherein the number of unacknowledged packets placed by the networking component in transit on the link is less than or equal to a congestion window value $cwnd_i$;

a) the value of $cwnd_i$ is varied according to an additive-increase multiplicative-decrease (AIMD) law having a multiplicative decrease parameter β_i;

b) the value of β_i is set by:

i) during data transmission, periodically monitoring the value of the mean inter-packet time IPT_{min} or the mean throughput;

ii) upon the measured value of IPTmin or the mean throughput moving outside of a threshold band, resetting the value of β_i to β_{reset}; and

iii) upon IPT_{min} or the mean throughput returning within the threshold band, setting $\beta_i = \frac{RTT_{min,i}}{RTT_{max,i}}$ and periodically resetting β_i in response to changes in the value of $RTTmin,i$ or $RTTmax,i$ or the mean throughput; and

c) packets are transmitted over the network link in accordance with the value of $cwnd_i$.

46. (New) A networking component for transmission of data in packets over a network link using a transport layer protocol, the networking component being operative to implement congestion control,

wherein the number of unacknowledged packets placed by the networking component in transit on the link is less than or equal to a congestion window value $cwnd_i$;

a) the value of $cwnd_i$ is varied according to an additive-increase multiplicative-decrease (AIMD) law having a rate of increase parameter α_i;

b) the value of α_i is increased during each congestion epoch as a function of time from the start of a congestion epoch, and

c) packets are transmitted over the network link in accordance with the value of $cwnd_i$.